1978

THE 'TOP SECRET' REGISTRY OF U.S. GOVERNMENT RADIO FREQUENCIES

$4.95

BY TOM KNEITEL, K2AES

25 TO 470 MHZ

MORE THAN 2,250 LISTINGS!

INCLUDING

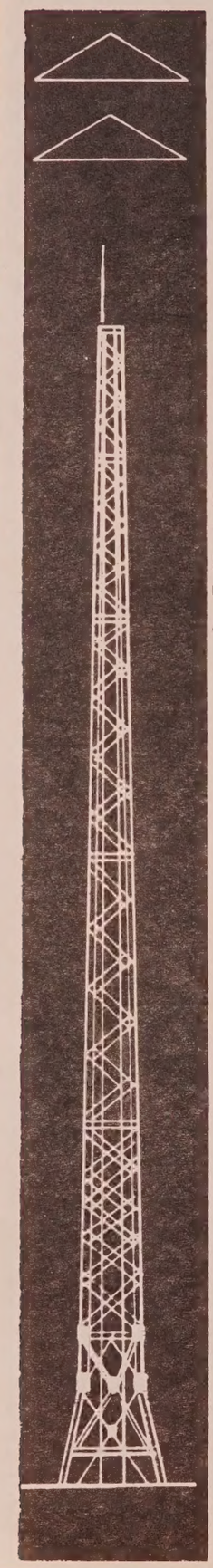
MILITARY FCC CIA

FBI TREASURY

BORDER PATROL

NASA PRISONS &

MORE!



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LAST MINUTE ADDITIONS TO THIS REGISTRY

WE ARE RECEIVING A CONSTANT STREAM OF ADDITIONAL LISTINGS FROM USERS OF THIS REGISTRY, FOR WHICH WE ARE GRATEFUL. ALL USERS ARE REQUESTED TO ADVISE US OF ADDITIONS, CHANGES, CORRECTIONS. IF A REPLY IS REQUESTED, PLEASE ENCLOSE A SELF ADDRESSED STAMPED RETURN ENVELOPE. IN ADDITION TO THE 3 FCC FREQUENCIES INDICATED, SOME CORRESPONDENTS HAVE INDICATED THAT FCC MOBILE MONITORING UNITS & FIELD ENGINEERING TEAMS CAN OPERATE ON ALL 40 REGULAR CB CHANNELS.

27.575 FCC MIL NGS	158.445 EPA
27.585 NGS	159.480 EPA
30.020 NOAA	161.580 EPA
30.340 NOAA	162.560 ARMY
31.000 ARMY	162.620 ARMY
31.960 ARMY	162.650 ARMY
34.020 NOAA	162.750 USAF
38.890 USAE	162.800 ARMY
41.060 FCC	162.984 USAF
54.020 USN	163.200 ARMY
54.140 USN	163.250 ARMY
119.975 DAFS	163.475 USAF
120.425 FBI	163.525 USAF
122.850 DAFS	163.600 USAF
122.925 DAFS	163.888
122.950 DAFS	163.915
123.050 NOAA	163.985
143.360 FBI	164.050 USAF
143.460 FBI	167.125 FBI
148.145 USAF	167.175 FBI BIA
148.475 USAF	259.700 NASA
148.515 USAF	296.800 NASA
150.195 USAF	408.252 IBP
150.980 EPA	408.802 FCC
154.585 EPA	450.000 NASA
156.255 EPA	454.000 EPA
157.075 EPA USCG	459.000 EPA

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25 TO 470 MHZ

BY TOM KNEITEL, K2AES

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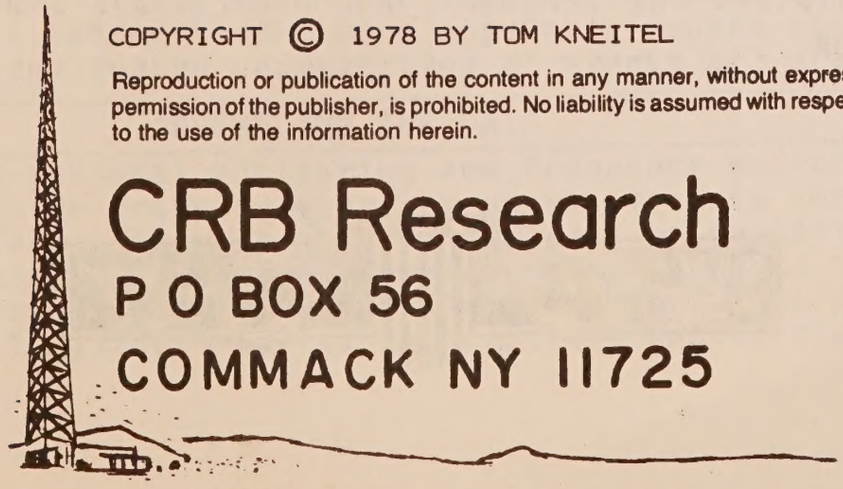


TABLE OF CONTENTS

INTRODUCTION. 5
FREQUENCIES 6
FRACTURED FREQUENCIES 7
ACTIVITY STATUS 7
TRANSMISSION MODES. 8
EQUIPMENT 8
STATION IDENTIFICATION. 9
SOME LISTENING TIPS 10
SECRECY OF COMMUNICATIONS 11
TO QSL OR NOT TO QSL? 11
AGENCY DESIGNATOR CODES USED. 13
DIRECTORY OF U.S. GOVERNMENT FREQUENCIES
25.34Ø to 36.6ØØ MHz. 14
36.62Ø to 42.9ØØ MHz. 15
46.1ØØ to 14Ø.Ø55 MHz 16
140.Ø56 to 148.525 MHz 17
148.53Ø to 163.525 MHz 18
163.638 to 167.275 MHz 19
167.288 to 171.875 MHz 20
171.9ØØ to 257.3ØØ MHz 21
257.4ØØ to 282.1ØØ MHz 22
282.7ØØ to 31Ø.95Ø MHz 23
311.ØØØ to 349.9ØØ MHz 24
35Ø.ØØØ to 4Ø6.Ø75 MHz 25
4Ø6.125 to 47Ø.ØØØ MHz 26
ABOUT THE AUTHOR. 26

One of the most fascinating and exciting aspects of monitoring the "action" bands by means of a scanner or tunable receiver is listening in on the many operations of governmental agencies, both military and civilian; it's fascinating alright, but it has usually meant groping in the dark. Why? Because there has always been a monumental lack of data available to aid the listener. While listings of local, state, county police and fire services have been available for several years now, data on federal operations has remained in the Twilight Zone despite an increasing public interest in these operations.

I have been a fan of these frequencies for 30 years and I have watched them evolve and expand upwards in frequency, keeping pace with modern technologies. And while these operations have been keeping pace, I have been keeping records of what they've been up to-- shifting and changing frequencies, updating their systems. This book contains data from my personal files of these operations so that those many enthusiasts of these frequencies can get additional insights into these operations with a massive transfusion of data such as has never before been made available to the public.

Why has such data not been made public? Well, unlike FCC licensee data, which is on "public record," governmental stations are not under the jurisdiction of the FCC. They are under the control of other agencies with mysterious initials such as IRAC, MCEB, and agencies such as the Dept. of Defense. Data on these stations is NOT a matter of public record. This list, then, contains information on the frequencies which are used by such "unlisted" stations.

I would like to point out that much of the line which separates governmental and non-governmental operations is fuzzy, at best. Some civilian non-governmental agencies (such as police departments or forest fire agencies operated by state governments) have been authorized for operation on several "federal" frequencies in order to coordinate their operations with federal agencies. On the other hand sometimes federal stations pop up on "civilian" frequencies such as the Coast Guard on CB Channel 9 or VHF Maritime Channel 16. And, in between, there are mixes of such stations on frequencies used for oil spill cleanups, just as there are civilian contractors doing experimental research and development projects on behalf of the government also to be heard on "federal" frequencies. I have endeavored to use my experience and personal evaluation to offer you a rather complete "mix" of these operations.

By "mix" I mean that there are some rather unusual listings here, such as 388.ØØØ MHz. That frequency has been used for experiments with a "death ray" project, since it was determined that the nervous systems of certain primates are resonant there. Then, there are listed herein the hundreds of highly active but little-known UHF frequencies used by all manner of agencies. All this, added to the more popularly sought after frequencies which are within the tuning capabilities of almost all scanners.

ASSEMBLING THE DATA

Besides my own personal monitoring and frequency measurements from the various places I have traveled over the years, my data input has been helped by exchanging information with other listeners, by comparing against such "official documents" as have been available from time to time, by being able to check through the frequency files of Z-Tech Enterprises (P.O. Box 70, Hauppauge, N.Y. 11787)-- a leading supplier and specialist in scanner

crystals covering governmental frequencies, and by making many "educated guesses."

It would be safe to speculate that there are additional frequencies used by governmental agencies which are not listed herein, just as it is a sure bet that there a couple of incorrect agencies listed for specific frequencies; but with the help of readers using this listing as a starting point, perhaps we can continue to "purify" and expand it. So, readers are requested to offer additions and corrections which can be considered for inclusion in future editions of this book. It is not the intention of this listing, by the way, to cover frequencies below 25 MHz or above 470 MHz.

Your attention is especially directed towards the fact that some frequencies I list have no agency designator. What that means is that activity has been noted on such frequencies but that there has not been sufficient data at this time to determine or even offer a "good guess" as to which agency or agencies might be using same. If you hear something on one of these, take a guess and let us know what you think-- your guess might be THE one!

FREQUENCIES

In the normal course of operations, federal stations are primarily set up in their "own bands," which they have on an exclusive basis and upon which the FCC does not place non-government stations. These, then, are the bands with which this listing is specifically concerned, plus a few assorted oddball frequencies which lie outside of the "protected" bands. Within the scope of this listing, the government bands are as follows:

25.33Ø TO 26.1ØØ MHZ	36.ØØØ TO 37.ØØØ MHZ	148.ØØØ TO 15Ø.ØØØ MHZ
26.48Ø TO 26.95Ø MHZ	38.ØØØ TO 39.ØØØ MHZ	157.Ø4Ø TO 157.19Ø MHZ
27.54Ø TO 28.ØØØ MHZ	4Ø.ØØØ TO 42.ØØØ MHZ	162.Ø2Ø TO 173.2ØØ MHZ
29.89Ø TO 29.91Ø MHZ	46.6ØØ TO 47.ØØØ MHZ	173.4ØØ TO 174.ØØØ MHZ
32.ØØØ TO 33.ØØØ MHZ	49.6ØØ TO 5Ø.ØØØ MHZ	216.ØØØ TO 22Ø.ØØØ MHZ
34.ØØØ TO 35.ØØØ MHZ	138.ØØØ TO 144.ØØØ MHZ	225.ØØØ TO 42Ø.ØØØ MHZ

Those readers having scanners with a "search" feature might wish to select those bands from the above listing which lie within the frequency capabilities of their equipment and see if the "automatic frequency search" will detect additional frequencies to those listed herein.

Governmental agencies do not always use all available frequencies at any given time, more often than not they tend to shift and change from time to time within the assortment of those available to them, sometimes leaving a particular frequency dormant for a lengthy period of time. Also, frequencies in use in a particular city may be inactive at other locations from which the agency operates. Also there is noted some exchanging of frequencies at times; for instance, several years back 167.3Ø3 MHz was used by the Immigration people, however it was later in use by the FBI. Some of the frequencies listed herein are "input" frequencies for repeaters aboard satellites; these would include 149.195, 149.22Ø, and 149.245 MHz, amongst others (as a bit of trivia, the research vessel Calypso-- Jacques Cousteau's vessel-- has been monitored on 149.195 MHz working into the ATS-3 Satellite).

Also, I would point out that agencies of the government (especially military ones) have communications facilities overseas, and some or all of the frequencies we list would therefore be in worldwide use; in fact it is probably the case that some of these frequencies may be in use only at overseas locations during a particular time period.

You will also see that there are to be noted "frequency clusters," that is to say, groupings of frequencies within a small band-segment which are used by (or available for use by) a particular agency. If looking for an "unknown" frequency of a particular agency, a good bet would be to start your search near one of those frequency clusters. Such clusters are established so that the agency can have multi-channel equipment, and also have the option to replace their operational channels with a totally new set of frequencies without retuning the transmitters and re-peaking the antennas. In some instances, it can also relate to scrambling or communications security efforts (more about that later).

FRACTURED FREQUENCIES

One of the most needlessly vexing things about governmental frequency assignments is that several of them are established on fractional frequencies. That is to say, for some reason of obscure importance, the "actual assigned" frequency of a particular station or system might be, for example, something like 173.4375 MHz. This often throws listeners into a state of shock when they see something like that written out, and they either 1) figure that they can't hear it on their programmable scanner since it can only get as close to that frequency as 173.435 or 173.440, but will miss the exact frequency altogether; or 2) insist upon ordering scanner crystals that are cut right down to the last 500 cycles (Hz). Let me put your fears to rest if you are in either category, the impressive looking frequency is nothing fearsome-- in fact some governmental stations go out to 6 or more places after the decimal point!! Fact is that, as sophisticated as all of this looks, to your scanner it is strictly business as usual. In fact, in our listings we have listed out only to 3 decimal places and rounded off the last digit to a full kHz rather than try to impress you with 4 decimal places. So 173.438 MHz is how it looks in this list, and that's as much as you have to worry about when ordering a crystal, and if you are trying to hear this on a programmable scanner then listen on either 173.435 or 173.440 MHz-- it will work just fine as your scanner won't even notice the difference of a station being a mere 2½ Hz "off center;" that's because it is designed to pick up anything within that "tolerance."

Also let me mention that "last zeros" after a decimal point are a bit confusing to some listeners. For uniformity, in this listing we have shown all frequencies out to 3 decimal places, however not all frequencies need actually be written out as such. For instance, the frequency 162.4ØØ in our list can also be written 162.4, or 162.4Ø, or 162.4ØØØ! In actual practice, it is common to see many UHF and VHF aero and marine frequencies written out without "final zeros, such as 268.5 instead of 268.500, such as we have, but these are only different ways of writing out the exact same frequency. The reason I mention this is that I have received many letters asking me to explain if a crystal marked 156.8 MHz will bring in VHF Maritime Channel 16 on 156.8Ø; again, these are only 2 ways of saying the same thing!

ACTIVITY STATUS

As I mentioned previously, these agencies play musical chairs with their frequencies; all we can hope to do is present you with a listing of the frequencies which seem to be available for use based upon recent monitoring and research. We cannot guarantee that in your local area any particular listed frequency will be in full, sporadic, or back-up use at any given time. Undoubtedly, the huge multitude of military frequencies which are available are hardly expected to be in full use during peacetime, although sometimes I have heard normally "dead" frequencies unexpectedly come to life when equipment is being checked out for "ready status."

As a very general "rule of thumb," much of the communications which lie between 138 and 15Ø MHz and 216 to 4ØØ MHz are connected with aeronautical operations-- there are exceptions, of course; but this is a guideline to keep in mind. (I am, naturally, excluding the 2 Amateur Radio bands which lie within these overall band limits.)

Some agencies use repeaters, so it is often the case that mobile units connected with such a system will have operational capabilities which will enable them to communicate either through the repeater, or to bypass the repeater for short-range "direct" communications from mobile to mobile or with hand held units. In systems employing repeaters, it will be far more interesting and effective if you can listen to the repeater output frequency than attempting to hear the mobile units "direct" on the repeater input ("talk-in") frequency.

TRANSMISSION MODES

The types of transmissions you are liable to hear coming from these stations is varied indeed. Voice? Yes, of course-- in the 30 to 50 MHz band, 162 to 174 MHz, and from 406 to 470 MHz this will most likely be FM. Below 30 MHz it could be FM, but more than likely you will hear AM or SSB predominating. Aeronautical operations seem to prefer AM for both VHF and UHF.

But you will also hear "dead carriers," you will hear teletype from time to time, and also all manner of eerie sounding data transmissions which come in a wide assortment of types ranging from "squeaky wheels" (radio facsimile), pulses, chirps, and "bagpipes." Sometimes voice transmissions take place on the same frequencies, alternating with the data transmissions.

Many of the frequencies we list as "NASA" are satellite operational channels, and while some of these are voice repeater links, others are strictly high-speed data transmissions which will make little sense to the casual listener. I would also like to point out that data transmissions from satellites are not normally a continuous "on all the time" transmission. The general practice is that there are ground stations which send a "trigger" signal out as the satellite passes over them, this causes the satellite to send out stored-up data in a burst which may be relatively brief.

There are many "data" transmissions to be heard between 169 and 174 MHz, 216 to 220 MHz, and 400 to 406 MHz. Radiosondes can be heard in the 400 to 406 MHz band.

There are specialized antennas which will be of considerable aid in the monitoring of satellites, radiosondes, and other high altitude trinkets. Indeed, these transmissions are very low powered and often cannot be heard at all without a properly designed antenna. Those interested in such pursuits can check out articles on such antennas which have appeared in various Amateur Radio magazines over the past few years. Other handy literature would be the "Satellite Situation Report," a bi-monthly NASA publication which lists satellite tracking information and frequencies. There is no charge for it, but they send it out rather sparingly only upon being given reason to believe that you have some actual reason for having it other than for casual reading.

In some instances, voice scramblers have been noted on governmental channels, however they are infrequent. It is speculatory if any of the several "unscramblers" will be effective in deciphering government stations which use scramblers. In some cases, some voice security is obtained by the simple expediency of "duplex" operation; that is, 2 stations communicating with one another on different frequencies. Unless you can zero in on both frequencies before the communication ends, you've only heard ½ of what was said! A complex scrambling system which has been tried uses several frequencies (like 10 or 12) and split-second "bits" of voice are fired out on each of the frequencies in rapidly rotating succession. If you have 10 or 12 receivers all going at the same time, each tuned to 1 of the frequencies in use, then it will all come together and make sense-- other than that, it's total jibberish! Fact is, that you would be surprised to find that scramblers are so infrequently used, even on communications which you would normally assume would (or should) be scrambled; especially when your local police department bought a scrambler and takes delight in using it all the time, even for "lost dog" and "taking a lunch break" calls.

EQUIPMENT

The popular scanners available these days should be able to pull in the most active and interesting frequencies in this listing, as these take place in bands adjacent to police/fire transmissions which these scanners were primarilly designed to offer to their owners. The low band (30 to 50 MHz) and high band (152 to 174 MHz), as well as UHF above 450 MHz are offered on the majority of quality scanners, with some units also

offer the 2-Meter ham band (144 to 148 MHz) and some of the surrounding spectrum. There are also scanners available (again-- after several years of not being available) for the aeronautical band frequencies between about 115 and 130 MHz; individual models may well cover a wide enough frequency range to permit tuning of the government frequencies just above this band.

Unfortunately, as of this writing there is a scarcity of receiving gear which brings in the communications taking place from 216 to 400 MHz; maybe manufacturers just never knew that there was so much taking place there!! Well there is much activity in this band and hopefully this directory will point this up and be the inspiration for some equipment development! With the increased interest in the Ham bands at these frequencies, and the undercurrent of talk about possible new CB channels near 220 MHz, maybe now is the time for such equipment to appear.

I was lucky enough to find a piece of military surplus receiving gear which covers these frequencies, however I have seen only a few around of this model and suspect it isn't easily available. The set is called the AN/URR-35C, an old Navy job that covers about 210 through 450 MHz, tunable (with a crystal position too). Looks to be Korean War vintage, ugly as sin, weighs enough to be used as an anchor for a Light Cruiser-- but it does a good job and it was all set to go without any conversion. You might keep an eye out for one of these sets, or any of the equivalent sets which were made for the military during recent hostilities and are available on the "surplus" market. Check ads in ham publications for dealers trading in military surplus communications gear. I got mine at a ham swap meet!

Most communications receivers go up as high as 30 MHz and will bring in the communications frequencies between 25 and 30 MHz listed herein. A CB antenna will cover these frequencies quite well; in fact many CB'ers have taken to bootlegging on some of these frequencies and you may have to sort 'em out at times (especially when "skip" is working) to hear anything other than their operations. Kneitel's Law: If they're talking about sending QSL cards or saying "10-4," it's probably NOT a government station!

Antennas for other bands we list are garden variety types you would use for regular police/fire scanning on low, high, and UHF bands. I have found that 2-meter ham band omni-directional antennas do a pretty fine job of receiving a very wide swath of VHF frequencies, much better than the VHF ground-planes which most scanner owners seem to end up using. I suppose if a person were a super-perfectionist he could trim the 2-meter antenna down a bit to pay homage to the 20 MHz difference between 144 MHz and the 162 to 174 MHz government band, but it seems to make little difference for receiving purposes. Likewise, a 220 MHz ham band antenna goes well with the AN/URR-35C surplus receiver.

I might add that if a person were adept at construction of electronic gear, there are plans galore (in ham publications) for converters and receivers for frequencies close enough to everything listed in this directory so that reception would be available with only a few design changes.

You might also wish to build your own antenna, it's not too difficult to do from plans for ham antennas. A directional beam when used in conjunction with an omni-directional type is a definite asset; you pick up the station on the omni, then switch over to the directional beam and bring the signal up in strength. Build your own beam, or buy one-- it will mean a lot if you're trying to hear mobile units.

STATION IDENTIFICATION

While not having to go through the formality of obtaining an FCC license, most civilian agencies operating on these frequencies nevertheless have FCC-like callsigns; not that they all use them with any more regularity than FCC licensees-- but they all have them. In fact, a great many military stations have "formal" callsigns assigned to them too, however it is but seldom that you will hear them actually used. Of course, stations sending non-voice transmissions such as telemetry and such will have their iden-

tifications coded in with the data and they will be unable to be copied.

Military stations, more frequently than not, use code names or other "tactical callsigns" which do not bear any similarity to regular callsigns either living or dead. And, while you may well hear a Coast Guard station openly identifying itself as something like "Coast Guard Sandy Hook," or "Coast Guard Galveston," with the other services you won't be quite so lucky. It will be up to you to figure out whether or not a station calling itself "PAPA LIMA 7" or "TOP DOG" is Army, Navy, Marines-- or maybe a non-military undercover operation by a law enforcement agency. What's even worse, those who use tactical identifiers, unlike CB'ers whose similar "handles" are a permanent fixture, tend to change callsigns on an annoyingly regular basis. So, today's "PAPA LIMA 7," might well be tomorrow's "SILVER DOLLAR;" same station that was heard as "ORPHAN ANNIE" only last week!

The Secret Service has it's own jargon for identifying those under its protection, all prescribed by the White House Communications Agency (WHCA) and contained in a secret "callbook list" owned by the government. These are the strange names which listeners have reported hearing via scanners tuned to these frequencies-- each President known under a code name. Deacon = Carter; Ford = Pass Key; Nixon = Searchlight; Johnson = Volunteer; Kennedy = Lancer. These code names are selected from a larger book of possible callsigns prepared by the MCEB, it contains hundreds of words that are easily understood and pronounceable and have no "undesirable" connotations. From this master list, individual codenames are drawn for all who come under the watch of the Secret Service. When a particular codeword receives too much publicity it is considered "worn out" and replaced by a new one. However the "discarded" name is placed on inactive status any often turns up at a later date-- having been given to another person!

A bit of listening to the communications of any given agency will reveal a specialized radio jargon which seems unique to that particular agency; whether it is intended as a security measure or is simply "their way of talking" isn't really clear to me. But after a few days of listening to the agency, the jargon becomes rather easily understandable to even the most casual listener. None of it matches up with the jargon you hear on the TV programs about these agencies!

For the record, the majority of civilian agencies are given callsigns which consist of the letter "K" followed by 2 more letters and then 3 numerals. Army and USAF base stations have callsigns starting with the letter "A" which is followed by 2 letters and nothing else, or from 1 to 3 numbers. USN and USCG ships have 4 letter callsigns beginning with the letter "N," while USCG bases have callsigns starting with "N" followed by 2 letters and nothing else (major stations), or 1 or 2 numerals (lifeboat or light stations). USN bases have 3 letter callsigns starting with "N." Aircraft and mobile units all use tactical identifiers. USMC stations have callsigns similar to USN types.

SOME LISTENING TIPS

If using a tunable receiver-- tune s-l-o-w-l-y! Listen for those weak ones down "in the mud. If your set has a BFO or SSB switch, use it while you're tuning the band; it will make an easily heard heterodyne whistle when you tune across a weak signal, one you would normally miss!

If using a scanner, don't be afraid to let it "sit" on a dead frequency for a few days-- maybe it's not as dead as it seemed. There's a "dead" one in my area that seems to activate only briefly a few times a week, but when it does it is rather startling to say the least! So, don't be afraid to invest some time in giving "intensive study" of a particular frequency or small cluster of frequencies, it may pay off handsomely!

If you have a programmable scanner with a "search" feature, set it to a small (say, 500 kHz) scanning band and just let it do its thing there for a day or two (forget weekends). Trying to scan too many frequencies at one clip is self-defeating, you want to re-scan each frequency as often as possible since transmission time is often quite short.

SECRECY OF COMMUNICATIONS

They've got a law on the books called Section 6Ø5 of The Communications Act. It relates to all types of wiretapping and such, but it also says that, with the exception of AM/FM/TV broadcasting stations and also ham radio, radio transmissions are "secret" (yes, even including CB shouts). What this means, from a practical standpoint, is that you, as a private individual, can listen all you want and to anything you want to hear; but you aren't allowed to reveal to any other person the contents of transmissions you may pick up from non-broadcast and non-ham stations (actually the law goes so far as to specify that you can't even say that a specific transmission even took place); nor can you use any information you overhear in one of these transmissions for personal benefit or gain. It's a law which is open to considerable interpretation by those who are enabled to enforce it, probably based upon someone making a complaint that someone else has violated same. But I pass it on to you since (with the exception of NOAA weather forecasts on 162.55, etc.) this law does apply to anything you may hear on all of the frequencies listed in this directory, and certainly all monitors should be aware that such a law exists. That is to say that it was only recently when newspapers reported the unhappy plight of one Kenneth E. Scannell, 26, of Shakopee, Minn. Court records indicated that Mr. Scannell listened to the transmissions of the Treasury Dept.'s Alcohol, Tobacco & Firearms agents on his scanner and, federal prosecutors claimed, he then contacted the suspects who were being "tailed" and told them they were being watched. A Federal Judge sentenced him to 3 months in jail and (even worse) the following 33 months without owning a scanner! So, do your listening-- but use good judgement and common sense and don't run afoul of this law! I might also add that in some areas there are restrictions against installing a scanner in a motor vehicle-- these are all local ordinances established by state, county, and municipal authorities. In some of these areas you can get a special permit for the installation if you can prove to the "authorities" that you have some valid reason for the installation. Enforcement and potential punishments for violations vary, and in some instances, these laws are so poorly written that they forbid only actual "installations," but overlook the possibilities of someone listening in from their vehicle via means of a hand-held battery powered type scanner! On the other hand, I have seen laws so "tightly" written that, if given the strictest interpretation, they would seemingly ban even CB radios and mobile telephone sets! So, before you consider sticking any kind of a scanner in your vehicle, check into such restrictions-- which will vary in each of the areas you may be using your vehicle!

TO QSL OR NOT TO QSL?

It is perhaps ironic to follow up the foregoing information with talk about getting QSL cards from these stations, but it is nevertheless possible to get obtain confirmations from some of the stations you may hear! I think that one must take into account that the casual listener or even the serious monitoring "buff" must be viewed in a different perspective than a person who blatantly violates the laws relating to Secrecy of Communications. Those who staff many of the governmental (and also commercial) communications stations recognize this and sometimes even welcome (or at least tolerate) a reception report and a request for confirmation. Not <u>all</u> agencies, mind you-- some would most likely become extremely annoyed at someine who had the "audacity" to ask for a QSL! This is partly because the people who operate at least some of the federal stations are reacting with some surprise that anybody knew their "unlisted" frequencies, and then figured out which agency it was, and which specific office of that agency in particular that was monitored. I would say that those agencies which are concerned with any type of law enforcement or detection work would be at the bottom of the list as QSL'ing possibilities and my advice is not to even bother sending out a report. A number of years ago I did manage to jiggle QSL's out of two such stations, but it wasn't easy and subsequent efforts with other

similarly oriented stations from the identical agency and other agencies were dismal failures and eventually proved to be more of a nuisance to me than the joy of the QSL's would have been worth! But "non-sensitive" agencies do seem to be pleasant about reception reports and will frequently respond to them; most surprising is that (except during periods of military hostilities) military stations have been surprisingly good about providing reception of verifications. Of course, in all cases, getting the veri is secondary to getting a firm identification on the station and then figuring out how to get your report to them via the mail! This is mostly a matter of ingenuity and experience, and can often be aided with several reference volumes such as The Speedex Utility Guide (from Speedex, P.O. Box E, Elsinor, Calif. 92330), or some of the various publications offered by Gilfer Associates (P.O. Box 239, Park Ridge, N.J. 07656).

In your report, mention exact or approximate frequency, time/date, and the signal characteristics (including interference, if any). As for the contents of the transmission, best bet is to be rather non-specific along the lines of "Base in communication with Mobile Unit 6," or something along those lines in preference to the exact details of the contents of the message. These stations don't have pre-printed QSL cards to return to you and the general rule is that if you hope to get a verification you will have to make it as easy as possible for them to send it to you. This is best accomplished by enclosing with your report to them a stamped reply prepared QSL card which you have made up for the purpose. A typical wording would be: "This will confirm your reception of station KRL186, of The National Fisheries Research Foundation, on 999.77 MHz, on February 30, 1999." All they need do is sign it and drop it in a mail box. Sometimes you will be surprised to find that the person who signs the card will add all sorts of interesting extra information about transmitter power, hours on the air, antenna type, other frequencies, etc., but leave it to them to volunteer such data-- best not to ask for it for fear of getting "turned off." In your letter to the station, explain that you are a communications hobbyist, describe your station, tell of some of the other QSL's you have obtained from similar stations.

Naturally, keep a log book of the things you hear, including a separate listing of "mystery" frequencies which you happen to stumble upon. This way you can re-check the frequencies in the future without having to go through the annoying bit of asking yourself, "Was that 168.285 or 168.825?" When you think you've got a line on the station, move it from the "mysteries" list into a card file of frequencies you've identified, or think you've identified. Of course, since pretty much everything you will be hearing on these frequencies is "unlisted," much of your file will consist of tentative data (subject to change) and hunches-- just as is a great deal of the information in the listing we present here. Few are the frequencies which can be "labelled" with 100% certainty by the listener, even after years of experience. As an example, I once zeroed-in on a station located outside the government bands which was obviously somehow connected with things taking place at a certain government installation; this based upon the names and addresses which they were discussing. AHA! I said to myself, they're being sneaky and have moved their operations to an "innocent looking" non-government frequency! I spread the word to a few fellow enthusiasts and was unhappily surprised when I was later laughingly informed that I was listening to a pizza delivery service making deliveries at the federal installation. So, I ask that you take all of the listings herein, any all of your own "discoveries" with this story tucked into the back of your memory-- that I am not offering any guarantees regarding the absolute accuracy of all of these listings insofar as operating agencies, merely my own guesses and opinions. Hopefully, you will share your guesses and opinions with me and we can eventually achieve maximum accuracy under the circumstances! Please send your additions, corrections, guesses and opinions to me in care of the publisher of this book-- include as much data as you can regarding frequency (whether approximate or exact), possible or probable operating agency, and that type of information!

AGENCY DESIGNATOR CODES USED

ARMY U S ARMY

ARMYM U S ARMY MILITARY AFFILIATE RADIO SYSTEM (MARS)

ATF U S TREASURY DEPT ALCOHOL TOBACCO & FIREARMS DIVISION

BIA BUREAU OF INDIAN AFFAIRS

BUREC BUREAU OF RECLAMATION

CAP CIVIL AIR PATROL AUXILIARY OF USAF

CIA CENTRAL INTELLIGENCE AGENCY

CUST U S CUSTOMS

DAFS DEPT OF AGRICULTURE FORESTRY SVC

DOT DEPT OF TRANSPORTATION

EBMS EXECUTIVE BRANCH MESSENGER SVC

EPA THIS DESIGNATOR INDICATES FREQUENCIES USED FOR THE TRANSMISSION OF DATA CONCERNED WITH THE ENVIRONMENT WHETHER SUCH TRANSMISSIONS ARE MADE BY THE ENVIRONMENTAL PROTECTION AGENCY OR OTHERS PERFORMING TASKS CONCERNED WITH ENVIRONMENTAL PROTECTION SUCH AS OIL SPILL CLEAN-UP, AIR POLLUTION, FLOOD PREVENTION, SEISMOLOGICAL WARNING SYSTEMS, ETC

FAA FEDERAL AVIATION ADMINISTRATION

FBI FEDERAL BUREAU OF INVESTIGATION

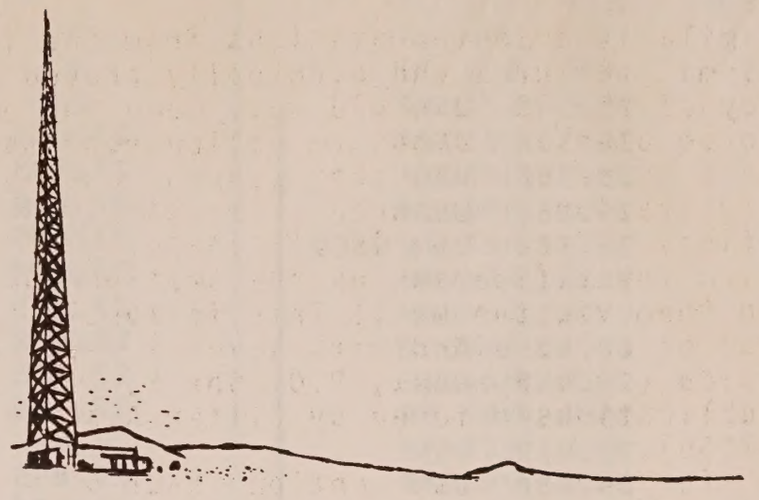
FCC FEDERAL COMMUNICATIONS COMMISSION

FWS FISH AND WILDLIFE SERVICE

IBP IMMIGRATION AND BORDER PATROL

MARSH U S MARSHAL

MIL THIS DESIGNATOR CODE INDICATES THAT THE FREQUENCY IS A MILITARY CHANNEL HOWEVER IT HAS NOT BEEN DETERMINED WHICH PARTICULAR SERVICE DOES OR COULD USE IT, OR IT IS USED BY MORE THAN ONE SERVICE



MIL-E MILITARY EMERGENCY CHANNEL

NASA THIS DESIGNATOR INDICATES NOT ONLY FREQUENCIES OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION BUT ALSO FREQUENCIES WHICH MAY BE USED BY OTHER AGENCIES CONCERNED WITH SPACE COMMUNICATIONS, RADIO ASTRONOMY, SATELLITES, ETC

NGS NATIONAL GEODETIC SURVEY

NOAA THIS DESIGNATOR INDICATES FREQUENCIES USED FOR THE TRANSMISSION OF INFORMATION RELATING TO WEATHER, INCLUDING DATA COLLECTION OPERATIONS AND WEATHER SATELLITE OPERATIONS, ALSO TRANSMISSION OF DATA TO THE PUBLIC

NPS NATIONAL PARK SERVICE

PRIS BUREAU OF PRISONS

PROTEC U S PROTECTION SERVICE

SECSERV SECRET SERVICE

STATE DEPARTMENT OF STATE

UN UNITED NATIONS

USAE U S ARMY CORPS OF ENGINEERS

USAF U S AIR FORCE

USAFM U S AIR FORCE MILITARY AFFILIATE RADIO SYSTEM (MARS)

USCG U S COAST GUARD

USCGSR U S COAST GUARD (SEARCH/RESCUE)

USMC U S MARINE CORPS

USN U S NAVY

USNM U S NAVY MILITARY AFFILIATE RADIO SYSTEM (MARS)

USPS U S POSTAL SERVICE

VETS VETERANS ADMINISTRATION

25.34Ø	USAF
25.35Ø	USAF
25.36Ø	USN
25.368	USAF
25.38Ø	USN/USCG
25.41Ø	USN
25.412	USN
25.425	ARMY
25.44Ø	USN
25.45Ø	
25.47Ø	USN
25.48Ø	USN
25.515	USN
25.575	USN
25.59Ø	USN
26.485	USN
26.49Ø	USN
26.5ØØ	ARMY
26.515	USAF
26.535	USN
26.54Ø	USN
26.55Ø	USN
26.56Ø	USN
26.575	ARMY
26.61Ø	USN
26.615	USN
26.62Ø	CAP
26.625	USAF
26.65Ø	USN/ARMY
26.665	USN
26.675	USN
26.76Ø	CIA
26.775	USN
26.8ØØ	MIL/IBP
26.825	USN
26.835	USN
26.85Ø	USN/ARMY
26.875	USN
26.88Ø	USN
26.9ØØ	ARMY
26.925	USN
26.93Ø	USN
26.94Ø	FAA
27.Ø65	USCG (CB)
27.Ø95	
27.15Ø	USN
27.55Ø	USN/ARMY
27.575	FCC/ARMY
27.585	
27.6ØØ	USN/ARMY
27.615	
27.625	ARMY
27.65Ø	USN/ARMY
27.675	ARMY
27.7ØØ	USN/ARMY
27.725	ARMY
27.75Ø	USN/ARMY
27.775	ARMY
27.8ØØ	USN/ARMY
27.825	ARMY
27.85Ø	USN/ARMY
27.875	ARMY
27.9ØØ	USN/ARMY
27.925	ARMY
27.95Ø	USN/ARMY
27.975	ARMY
27.98Ø	USCG/USAF
27.995	ARMY
29.895	CIA
29.9ØØ	CIA
29.9Ø5	CIA
3Ø.Ø1Ø	NASA
3Ø.Ø5Ø	USN
3Ø.Ø6Ø	
3Ø.1ØØ	
3Ø.14Ø	USN
3Ø.15Ø	USN
3Ø.2ØØ	USN
3Ø.25Ø	USN
3Ø.26Ø	NPS
3Ø.3ØØ	ARMY
3Ø.35Ø	USN
3Ø.36Ø	USCG
3Ø.38Ø	USCG
3Ø.4ØØ	USN
3Ø.42Ø	
3Ø.45Ø	USN
3Ø.46Ø	
3Ø.5ØØ	ARMY
3Ø.54Ø	USN
3Ø.5ØØ	USN
3Ø.56Ø	USN
32.ØØØ	USN
32.Ø2Ø	
32.Ø5Ø	USN
32.Ø6Ø	USN
32.Ø8Ø	USAF
32.1ØØ	ARMY/USAF
32.15Ø	USN
32.2ØØ	USN
32.25Ø	USN
32.3ØØ	ARMY
32.35Ø	USN
32.35Ø	USN
32.38Ø	USN
32.4ØØ	USN
32.42Ø	MIL
32.45Ø	USN
32.46Ø	MIL
32.5ØØ	MIL
32.54Ø	ARMY
32.55Ø	USN
32.6ØØ	USN
32.65Ø	USN
32.66Ø	MIL
32.7ØØ	MIL
32.8ØØ	USN
32.82Ø	
32.85Ø	USN
32.86Ø	ARMY
32.9ØØ	MIL
32.94Ø	ARMY
32.95Ø	USN
34.ØØØ	USN
34.Ø5Ø	USN
34.1ØØ	MIL
34.14Ø	ARMY
34.15Ø	USN
34.18Ø	USN
34.2ØØ	USN
34.25Ø	MIL
34.3ØØ	MIL
34.34Ø	MIL
34.38Ø	USN
34.46Ø	ARMY
34.5ØØ	MIL
34.54Ø	USN
34.55Ø	USN
34.58Ø	USN
34.6ØØ	USN
34.65Ø	USN
34.7ØØ	USN
34.74Ø	ARMY
34.75Ø	USN
34.78Ø	NPS
34.8ØØ	USN
34.82Ø	FWS
34.85Ø	USN
34.9ØØ	USN
34.94Ø	USN
34.98Ø	NGS
36.ØØØ	USN
36.Ø2Ø	NPS
36.Ø5Ø	USN
36.1ØØ	MIL
36.14Ø	MIL
36.15Ø	USN
36.18Ø	NPS
36.2ØØ	MIL
36.22Ø	NGS
36.25Ø	EPA
36.26Ø	NPS
36.3ØØ	MIL
36.34Ø	
36.35Ø	USN
36.4ØØ	USN
36.46Ø	ARMY
36.5ØØ	MIL
36.54Ø	MIL
36.55Ø	USN
36.58Ø	USN
36.6ØØ	MIL

36.62Ø	USN
36.65Ø	USN
36.7ØØ	MIL
36.72Ø	NGS
36.74Ø	
36.75Ø	USN
36.8ØØ	MIL
36.82Ø	USN
36.85Ø	MIL
36.86Ø	ARMY
36.9ØØ	MIL
36.94Ø	ARMY
36.95Ø	USN
38.ØØØ	USN
38.Ø5Ø	USN
38.Ø6Ø	ARMY
38.1ØØ	MIL
38.15Ø	USN
38.16Ø	
38.19Ø	
38.2ØØ	USN
38.22Ø	NGS
38.25Ø	USN
38.26Ø	NGS
38.3ØØ	ARMY
38.33Ø	ARMY
38.34Ø	USN
38.35Ø	USN
38.4ØØ	USN
38.42Ø	USN
38.45Ø	USN
38.46Ø	USN
38.5ØØ	MIL
38.54Ø	ARMY
38.55Ø	USN
38.6ØØ	USN
38.65Ø	USN
38.7ØØ	MIL
38.74Ø	USN
38.75Ø	MIL
38.8ØØ	USN
38.81Ø	ARMY
38.86Ø	ARMY
38.9ØØ	MIL
38.94Ø	USN
38.95Ø	USN
38.98Ø	FBI/ARMY
4Ø.ØØØ	NASA/MIL
4Ø.Ø2Ø	
4Ø.Ø5Ø	MIL
4Ø.Ø6Ø	ARMY
4Ø.1ØØ	MIL
4Ø.14Ø	MIL
4Ø.15Ø	MIL
4Ø.17Ø	
4Ø.19Ø	
4Ø.2ØØ	USN
4Ø.22Ø	FBI
4Ø.23Ø	
4Ø.25Ø	USN
4Ø.26Ø	
4Ø.3ØØ	USN
4Ø.35Ø	USN
4Ø.4ØØ	USN
4Ø.45Ø	USN
4Ø.5ØØ	MIL
4Ø.54Ø	MIL
4Ø.55Ø	USN
4Ø.6ØØ	USN
4Ø.62Ø	
4Ø.65Ø	USN
4Ø.68Ø	
4Ø.69Ø	
4Ø.7ØØ	MIL
4Ø.74Ø	
4Ø.75Ø	USN
4Ø.78Ø	MIL
4Ø.8ØØ	
4Ø.82Ø	USAF
4Ø.86Ø	EPA
4Ø.9ØØ	MIL
4Ø.92Ø	
4Ø.94Ø	ARMY
4Ø.95Ø	USN
4Ø.97Ø	
4Ø.98Ø	ARMY
41.ØØØ	USN
41.Ø2Ø	ARMY
41.Ø5Ø	USN
41.Ø6Ø	
41.1ØØ	USAF
41.14Ø	NPS
41.15Ø	USN
41.2ØØ	USN
41.25Ø	USN
41.3ØØ	MIL
41.34Ø	USN
41.45Ø	USN
41.5ØØ	MIL
41.55Ø	USN
41.6ØØ	USN
41.65Ø	USN
41.7ØØ	USN
41.71Ø	EPA
41.75Ø	USN
41.78Ø	
41.8ØØ	USN
41.82Ø	
41.85Ø	USN
41.9ØØ	USAF
41.94Ø	USAF
41.95Ø	USN
42.55Ø	USN
42.6ØØ	USN
42.65Ø	USN
42.7ØØ	USN
42.75Ø	USN
42.8ØØ	USN
42.85Ø	USN
42.9ØØ	USN
42.95Ø	USN
43.ØØØ	USN
43.Ø5Ø	USN
43.15Ø	USN
43.2ØØ	USN
43.25Ø	USN
43.3ØØ	USN
43.35Ø	USN
43.4ØØ	USN
43.45Ø	USN
43.5ØØ	USN
43.55Ø	USN
43.6ØØ	USN
43.65Ø	USN
43.7ØØ	USN
43.75Ø	USN
43.8ØØ	USN
43.85Ø	USN
43.9ØØ	USN
43.95Ø	USN
44.ØØØ	MIL
44.Ø5Ø	USN
44.1ØØ	USN
44.15Ø	USN
44.2ØØ	USN
44.3ØØ	USN
44.35Ø	USN
44.4ØØ	USN
44.45Ø	USN
44.5ØØ	USN
44.55Ø	USN
44.6ØØ	USN
44.7ØØ	USN
44.75Ø	USN
44.8ØØ	USN
44.85Ø	USN
44.9ØØ	USN
44.95Ø	USN
45.ØØØ	USN
45.Ø5Ø	USN
45.1ØØ	USN
45.15Ø	USN
45.2ØØ	USN
45.25Ø	USN
45.3ØØ	USN
45.35Ø	USN
45.4ØØ	USN
45.45Ø	USN
45.5ØØ	USN
45.55Ø	USN
45.6ØØ	USN
45.65Ø	USN
45.7ØØ	USN
45.75Ø	USN
45.8ØØ	USN
45.85Ø	USN
45.9ØØ	USN
45.95Ø	USN
46.ØØØ	USN
46.Ø5Ø	USN

46.1ØØ	USN
46.15Ø	USN
46.2ØØ	USN
46.25Ø	USN
46.3ØØ	USN
46.35Ø	USN
46.4ØØ	USN
46.45Ø	USN
46.5ØØ	USN
46.55Ø	USN
46.6ØØ	USN
46.61Ø	
46.62Ø	
46.64Ø	
46.65Ø	USN
46.66Ø	
46.67Ø	
46.7ØØ	USN
46.73Ø	
46.74Ø	
46.75Ø	USN
46.76Ø	
46.78Ø	
46.79Ø	
46.8ØØ	USN
46.82Ø	
46.85Ø	USN
46.88Ø	
46.9ØØ	USN
46.95Ø	USN
47.ØØØ	USN
47.Ø5Ø	USN
47.1ØØ	USN
47.15Ø	USN
47.2ØØ	USN
47.25Ø	USN
47.3ØØ	USN
47.35Ø	USN
47.4ØØ	USN
47.45Ø	USN
47.55Ø	USN
47.6ØØ	USN
47.65Ø	USN
47.7ØØ	USN
47.75Ø	USN
47.8ØØ	USN
47.85Ø	USN
47.9ØØ	USN
47.95Ø	USN
48.ØØØ	USN
48.Ø5Ø	USN
48.Ø5Ø	USN
48.1ØØ	USN
48.15Ø	USN
48.2ØØ	USN
48.25Ø	USN
48.3ØØ	USMC
49.65Ø	USAF
49.7ØØ	USAF
49.75Ø	MIL
49.8ØØ	MIL
49.85Ø	USN
49.86Ø	
49.9ØØ	USAF
49.94Ø	ARMYM
49.95Ø	USN
49.98Ø	MIL
121.5ØØ	MIL-E
122.9ØØ	CAP
123.1ØØ	CAP
133.2ØØ	USAF
135.6ØØ	NASA
135.9ØØ	USAF
136.Ø2Ø	NASA
136.145	NASA
136.2Ø8	NASA
136.23Ø	NASA
136.26Ø	NASA
136.28Ø	NASA
136.29Ø	NASA
136.32Ø	NASA
136.44Ø	NASA
136.47Ø	NASA
136.5ØØ	NOAA
136.53Ø	NASA
136.5ØØ	NOAA
136.68Ø	NASA
136.74Ø	NASA
136.77Ø	NASA
136.8ØØ	NASA
136.86Ø	NASA
136.89Ø	NASA
136.92Ø	NASA
136.95Ø	NASA
137.11Ø	NASA
137.14Ø	NOAA
137.23Ø	NASA
137.35Ø	NASA
137.5ØØ	NOAA
137.572	NASA
137.58Ø	NASA
137.62Ø	NOAA
137.86Ø	NASA
137.92Ø	NASA
137.98Ø	NASA
138.Ø6Ø	MIL
138.Ø75	USAF
138.12Ø	MIL
138.15Ø	MIL
138.165	USAF
138.2ØØ	
138.24Ø	MIL
138.25Ø	
138.3ØØ	
138.33Ø	MIL
138.4ØØ	
138.42Ø	MIL
138.48Ø	USN
138.51Ø	MIL
138.54Ø	USN
138.575	USN
138.6ØØ	USN
138.63Ø	MIL
138.65Ø	USN
138.66Ø	USN
138.675	USN
138.69Ø	MIL
138.7ØØ	
138.72Ø	USN
138.75Ø	MIL
138.775	USN
138.78Ø	MIL
138.82Ø	USN
138.84Ø	USN
138.87Ø	MIL
138.9ØØ	MIL
138.945	MIL
138.96Ø	USN
138.975	USN
139.Ø25	
139.Ø5Ø	MIL
139.Ø65	MIL
139.Ø8Ø	MIL
139.Ø95	MIL
139.11Ø	MIL
139.125	MIL
139.14Ø	MIL
139.2ØØ	MIL
139.23Ø	MIL
139.25Ø	MIL
139.265	MIL
139.29Ø	MIL
139.3ØØ	
139.3Ø5	MIL
139.32Ø	MIL
139.375	MIL
139.38Ø	MIL
139.4ØØ	MIL
139.455	MIL
139.5ØØ	USN
139.545	USN
139.56Ø	USN
139.575	USMC
139.58Ø	USN
139.59Ø	MIL
139.6ØØ	USN
139.68Ø	MIL
139.7ØØ	USAF
139.75Ø	MIL
139.77Ø	MIL
139.85Ø	USAF
139.86Ø	MIL
139.9ØØ	USAF
139.95Ø	MIL
14Ø.ØØØ	EPA
14Ø.Ø25	
14Ø.Ø35	USMC
14Ø.Ø4Ø	USN
14Ø.Ø5Ø	USMC
14Ø.Ø55	USN

140.056	NASA
140.075	USN
140.100	USN
140.125	USN
140.130	MIL
140.150	USN
140.160	USN
140.200	USN
140.220	USN
140.225	USN
140.250	USN
140.275	USN
140.280	USN
140.300	USN
140.310	USN
140.325	USN
140.340	USN
140.350	USN
140.375	USN
140.400	MIL
140.450	USN
140.445	USMC
140.450	USN
140.460	MIL
140.490	
140.520	USN
140.525	USMC
140.550	USN
140.580	USN
140.600	USN
140.625	USN
140.640	USN
140.650	USN
140.670	MIL
140.700	USN
140.750	USN
140.760	USN
140.775	USN
140.820	USN
140.850	MIL
140.880	USN
140.895	USN
149.910	MIL
140.925	USMC
140.940	USN
140.975	USN
141.000	USN
141.030	MIL
141.045	MIL
141.060	MIL
141.075	MIL
141.120	MIL
141.125	MIL
141.180	MIL
141.210	MIL
141.240	MIL
141.250	MIL
141.300	MIL
141.345	MIL
141.360	MIL
141.375	MIL
141.390	MIL
141.420	MIL
141.435	MIL
141.480	MIL
141.540	MIL
141.570	MIL
141.600	
141.660	MIL
141.750	USAF
141.800	USAF
141.840	MIL
141.900	USAF
141.950	USN
141.960	USN
141.975	USN
142.000	USN
142.020	USN
142.050	USN
142.075	USN
142.080	USN
142.100	USN
142.200	MIL
142.250	MIL
142.305	MIL
142.320	MIL
142.380	MIL
142.440	MIL
142.455	MIL
142.500	USN
142.525	USN
142.550	USMC
142.560	USN
142.575	USMC
142.600	USN
142.620	USN
142.625	USN
142.675	USN
142.680	USN
142.740	USN
142.725	USN
142.750	MIL
142.775	USN
142.800	USN
142.845	MIL
142.850	USN
142.860	USN
142.920	MIL
142.980	MIL
143.040	MIL
143.070	MIL
143.085	MIL
143.090	MIL
143.100	MIL
143.125	MIL
143.160	MIL
143.220	MIL
143.250	MIL
143.280	MIL
143.340	MIL
143.375	MIL
143.400	MIL
143.415	MIL
143.430	MIL
143.460	
143.505	USMC
143.520	USN
143.525	USN
143.550	USN
143.580	USN
143.600	USN
143.640	USN
143.650	USN
143.680	USN
143.700	USN
143.715	MIL
143.725	USN
143.760	USAF
143.800	USAF
143.850	USAF
143.880	USAF
143.900	CAP
143.950	USAFM
143.980	ARMYM
143.985	MIL
148.000	USAF
148.010	ARMYM
148.035	USAF
148.050	
148.065	USAF
148.095	USAF
148.100	
148.150	CAP
148.155	MIL
148.145	USAF
148.200	USAF
148.215	USAF
148.230	MIL
148.245	USAF
148.250	NASA
148.260	NASA
148.275	USN
148.280	
148.285	
148.290	USN
148.300	USN
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148.575	MIL
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148.7ØØ	
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162.8ØØ	ARMY
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162.875	IBP
162.9ØØ	IBP
162.925	IBP
162.95Ø	IBP
162.975	IBP
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163.ØØØ	CUST & USAF
163.Ø25	USAE
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163.Ø75	
163.Ø85	
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163.125	BIA
163.128	
163.175	BIA
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ABOUT THE AUTHOR

Tom Kneitel, for many years now, has been one of the most prolific and influential authors in the communications field. His articles have appeared in many magazines, including POPULAR ELECTRONICS, ELECTRONICS ILLUSTRATED, MODERN ELECTRONICS, TV GUIDE, BOYS LIFE, SPACE AGE, ELEMENTARY ELECTRONICS and CQ to name a few. He is Editorial Director of CB RADIO/S9 Magazine. In Tom's background are a long string of writer's credits for U.S. Army Signal Corps training films. An active Ham operator, K2AES (formerly W5KDR, K3FLL, and KS4CH), Tom is also active on CB, most often on the Sideband frequencies as "SSB-13" (he's the author of THE CB'ers SSB HANDBOOK, publ. 1977 by Hayden Books). As an ardent monitoring enthusiast, he maintains an extensive receiving installation covering all frequencies from VLF to UHF and has even worked with Radio Astronomy. His "Monitoring Registry" numbers are KNY2AB. Tom is a member (since 1964) of The SSB NETWORK, and is also listed in WHO'S WHO IN AMERICA.

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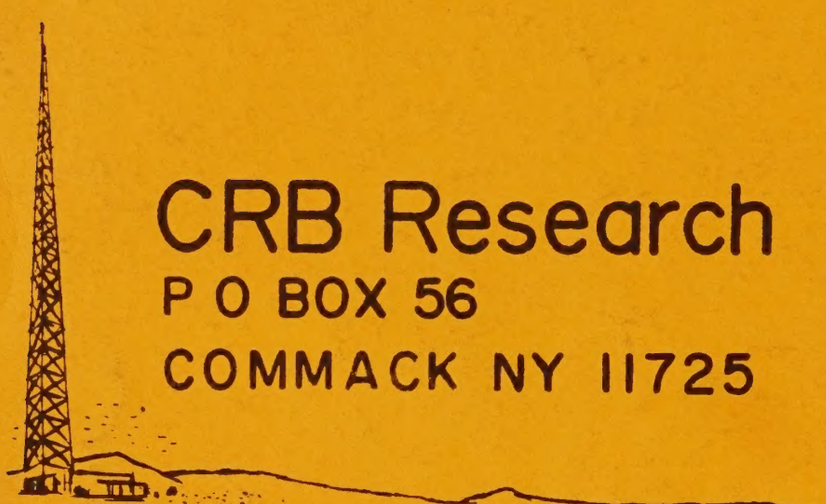

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